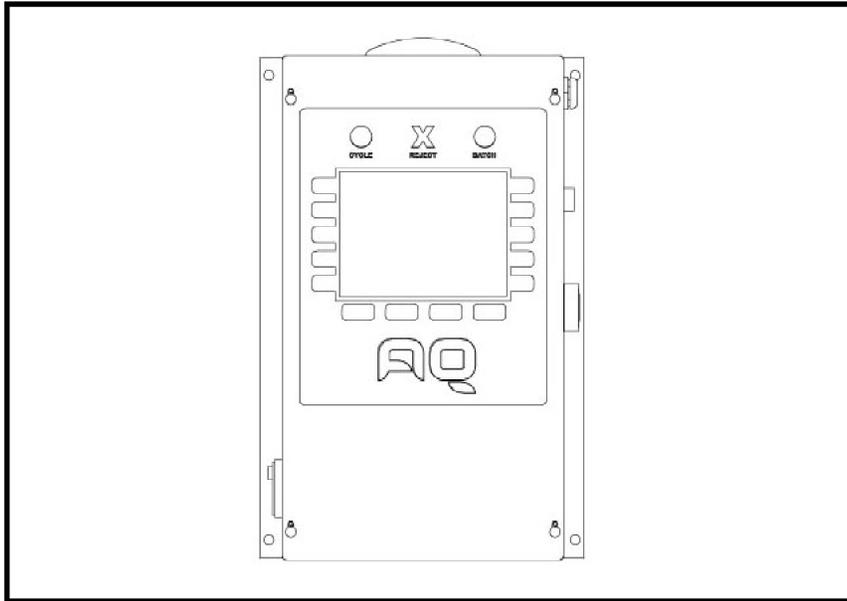


Assembly Qualifier

Wireless

INSTRUCTION MANUAL



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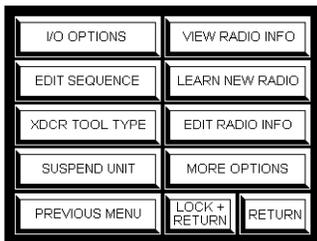
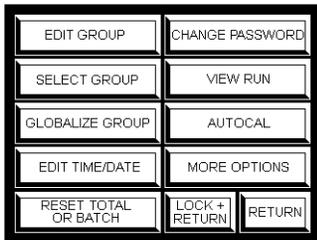
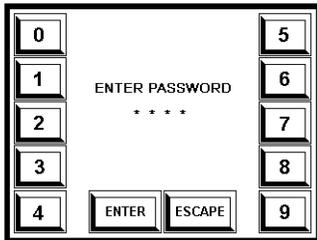
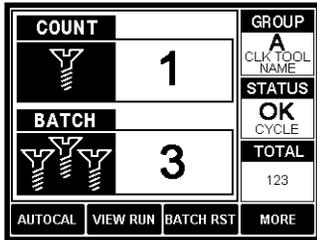
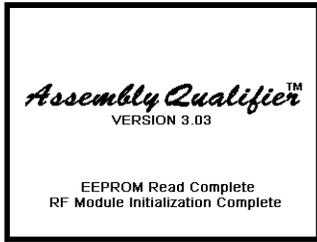
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Quick Start Guide T2



Step 1:

Power up the unit. During power-up the device will load the program, read stored settings, initialize the radio, and try to contact a radio tool.

Step 2:

To program a new tool, click the MORE button on the bottom right corner.

Step 3:

Enter the password (0104 default), or bypass the password by turning the key to the unlock position before pressing MORE.

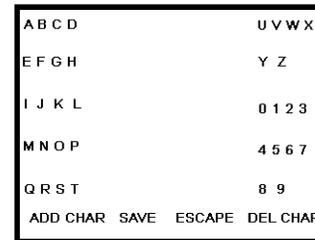
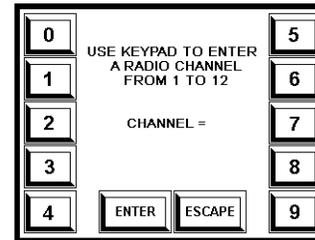
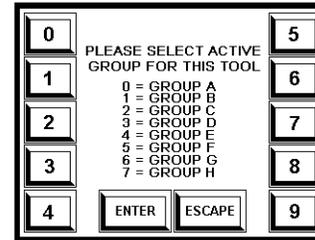
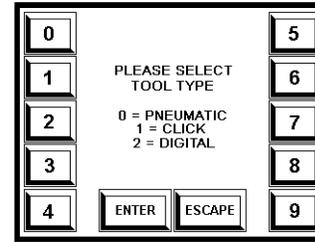
Step 4:

On the first Menu, select the button MORE OPTIONS on the right-side column to proceed to the second Menu.

Step 5:

Select LEARN NEW RADIO on the right-side column.

Quick Start Guide T2



Step 6:

Next, select the type of tool that is to be learned into the unit by selecting the number that represents the tool type.

Step 7:

Select the group you want to represent the tool.

Note: select the group that will be selected when the tool being learned is in use.

Step 8:

Type in the radio channel you desire the tool to communicate on.

Step 9:

Type in the name for the tool. Press button next to letter, multiple times if needed, to get the wanted letter. Select ADD CHAR at the bottom to add the letter to the name. Repeat until name appears as desired. Press SAVE.

Quick Start Guide T2

Pneumatic:

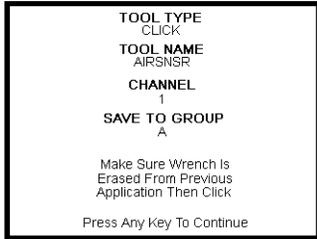


Step 10:

Depending on the tool type, the learn process varies slightly. A screen will appear at this point providing instructions on learning the selected tool type.

Hold button down on the transducer until it enters learn mode.

Click:



Click the wrench and hold until red light appears in order to erase previous application. Click wrench again to program tool.

Note: If the wrench has not been learned to a unit, it will learn on the first click.

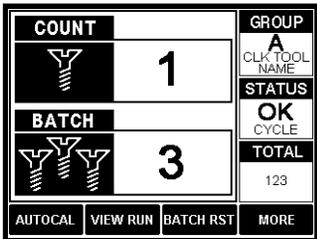
Digital:



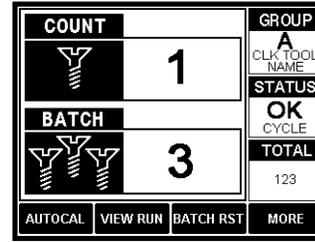
Turn off the wrench for 10 seconds, then turn in back on.

Step 11:

Upon successful completion of the learn process, press the return key to get back to the main screen.



Quick Start Guide T2



Step 12:

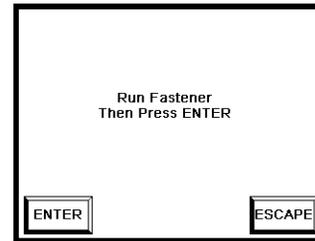
At this point, the box and the tool know how to communicate with each other. However, the tool's parameter set (group) may need to be edited so that it is monitoring the fastening process properly.

Step 13 (Pneumatic tools only):

Select the autocal button in the lower left hand corner of main screen. The screen will prompt you to make sure the tool is off and to press enter. This step sets up a background threshold.



Then you'll be prompted to run a fastener and press enter. At this point, run the tool on a typical fastener and press enter. The transducer will automatically create a parameter set (group) that will work with the previous fastening.



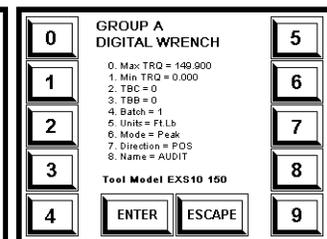
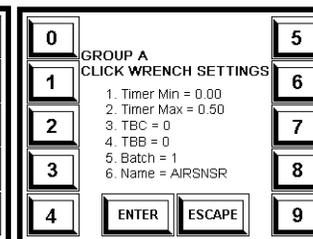
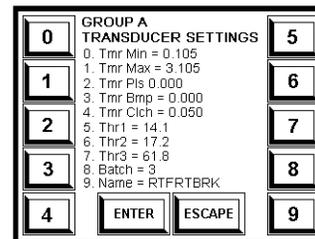
Step 14:

The final step in setting up any tool is programming the appropriate number of fasteners into the batch. Programming the batch can be accomplished by pressing the more button on the main screen and then pressing the edit group button on the first menu. The items that can be edited in a parameter (group) will vary based on tool type. After batch count is programmed, return to main screen.

Pneumatic Tool: Press '8' key to edit batch. The AutoCal function programmed the timers and thresholds.

Click Tool: Press '5' key to edit batch. The min and max timers can be edited to match your application.

Digital Tool: Press '4' key to edit batch. The min and max torque values can also be edited to match your application.



Introduction:

Thank-you for your purchase of the Assembly Qualifier Wireless unit! We are proud to be included as part of your assembly process.

This document is an operations guide for the AQ Wireless. The AQ Wireless can monitor digital wrenches, click wrenches, or pressure transducers. In its simplest form, the AQ Wireless is configured to monitor a tool while it's running, determine if the fastening process was successful, report the status of the fastening, and perform counting functions.

Before using the AQ Wireless, it is recommended that the user read this manual thoroughly. If this unit is mishandled a fatal accident, bodily injury, or damage to the AQ Wireless may occur.

This manual is intended to be a general guide to the operations of the AQ Wireless. If any additional questions or concerns arise, please contact a CE Electronics representative.

Warnings:



Do not disassemble the unit for repair or modifications. There is a high electrical voltage inside the unit that could cause electric shock.



Do not allow any type of liquid to come into contact with any part of the unit.



Immediately discontinue use of the unit if smoke, an abnormal odor, or an unusual sound is detected coming from the unit.

Warnings (continued):



Insert all fittings fully into their mating receptacles. Failure to do so could result in injury.



Do not fold, bend or apply excessive force to any cable or fitting.

Cautions:

Please use caution when handling this or any other electrical appliance.

This unit accepts an AC input voltage from 90VAC to 264VAC. Trying to operate this unit with a voltage outside that range may cause damage to the unit.

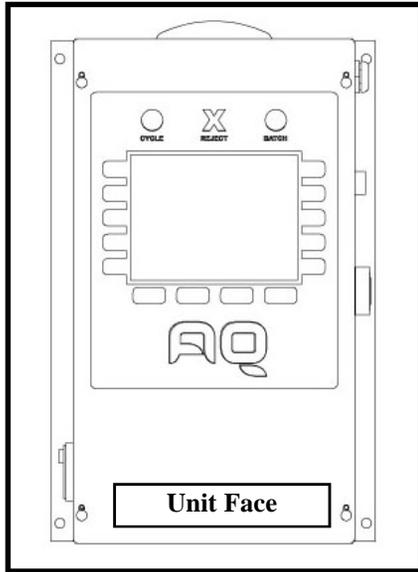
Avoid placing or storing this unit in a location where it may become wet or dust covered.

Do not place or mount this unit in an unstable area. Dropping this unit may result in personal injury or damage to the unit.

Before performing any maintenance on the unit, make sure to turn it off and remove the power plugs.

There are no user serviceable parts inside the main enclosure of the unit.

Unit Overview

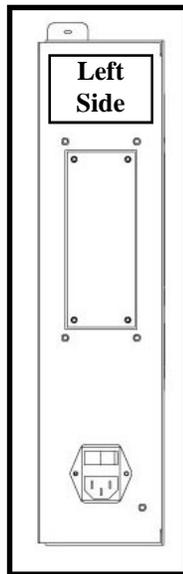


The user interface on the AQ Wireless is equipped with a 320 x 240 LCD display and a 14 key ATM style “soft key” format. The “soft” key’s functions will change depending upon the screen that is displayed. The keys are used to navigate through menus, select items that need to be edited, and to view information related to the tools.

Above the LCD display, there are three status indicators. The cycle status indicator will light up each time a fastening process is completed successfully. The batch status indication will be lit when the final fastener is completed in a group. If a fastening process is not completed properly, the reject status indicator will illuminate.

The left side of the unit is populated with a power entry module and a removable plate. The AQ wireless contains an auto-ranging power supply. That power supply is capable of accepting voltages from 90VAC to

264VAC. Depending upon the configuration of the unit, the plate on the left side may have a USB connector and or additional connectors.



Unit Overview (continued):

A companion Windows application is available that will make use of the USB port and aide in the set-up of the unit.

The right side of the unit is populated with a key-switch, beeper and a 10 pin connector.

The key-switch is used to bypass the password screen allowing direct access to the programmable functions.

The beeper can be programmed to beep on rejects, cycles, batches or not at all.

The 10-pin connector allows access to several optically isolated inputs and relay outputs. Inputs are available for selecting parameters, suspending and resetting the unit. Outputs are available for cycle, batch and reject statuses.

Main Screen

After the AQ Wireless powers up and initializes, one of two main screens will appear. These two screens are meant to provide meaningful feedback to an operator during an assembly process.

Main Screen (Digital Torque Tools):

TORQUE		GROUP	
12.34 FT.LB		A DIGITAL EXACTA	
ANGLE		STATUS	
UNAVAILABLE		OK CYCLE	
COUNT	BATCH	TOTAL	
1	3	123	
AUTOCAL	VIEW RUN	BATCH RST	MORE

If a digital torque tool is being used, the main screen will contain information about torque, units, angle, group (parameter), tool name, tool type, status, count, batch and total.

After a fastener is tightened with a digital tool, the tool will transmit a torque value back to the box. The unit will compare this value to the high and low torque values stored in the current group setting. If the torque value falls within this range and all the timers are satisfied, the count will be incremented. This process can repeat until the batch quantity is reached. All status (good and bad) will be displayed in the status windows. Each time a batch is reached, the total will be incremented.

Main Screen (Pneumatic and Click Tools):

COUNT		GROUP	
1		A CLK TOOL NAME	
BATCH		STATUS	
3		OK CYCLE	
		TOTAL	
		123	
AUTOCAL	VIEW RUN	BATCH RST	MORE

Pneumatic tools and click tools utilize a main screen that predominately features the count and batch values. The group (parameter), tool name, tool type, status, and total are also visible.

Click Wrenches will transmit a packet at the end of a fastening process. This packet contains information about the amount of time the tools head was “clicked” over after it reached it’s mechanical torque set-point. This time is compared to the timers stored in the units current group (parameter). If the time falls within an acceptable range, an accept is generated and the count is increased. This process can repeat until the batch

quantity is reached. All status (good and bad) will be displayed in the status windows. Each time a batch is reached, the total will be incremented.

Wireless pneumatic transducers sleep until a pressure event begins. When a fastening begins, the transducer will wake up and monitor the entire fastening process storing the analog data from the fastening until the process completes. After a fastening has completed, the pressure transducer compares the pneumatic signature to the timers and thresholds stored in its memory for the given group (parameter).

If the fastening conforms to the timers and thresholds, the transducer will transmit an accept to the AQ wireless. If the fastening does not conform to these requirements, a reject is transmitted to the AQ wireless.

Upon reception of the transducer’s status, the AQ Wireless will update the main screen to reflect the new status. This update will include updating the status, count, batch and total.

Main Screen (Definitions):

TORQUE: displays the torque applied by a digital torque wrench during the last fastening.

ANGLE: if available, this windows shows degrees of rotation.

GROUP: displays the group (parameter) that is currently being used, the type of tool, and the name of the tool

STATUS: shows whether or not the previous fastening was successful and met all requirements. OK is displayed if fastening is successful. NOK and a reason are displayed if the fastening fails.

COUNT: the number indicates how many fastenings in the batch have been completed

BATCH: displays the quantity in a batch

TOTAL: displays the number of batches that have been successfully completed.

Main Screen (continued)

There are four soft functions associated with the soft-key at the bottom of the screen. If the unit is unlocked, pressing one of the buttons will take the user directly to that function. The soft functions listed at the bottom of the main screen are Autocal, View Run, Batch Reset, and More.

Autocal

The AUTOCAL function provides a means of automatic calibration for the wireless pneumatic pressure transducers. If this function is employed for a digital wrench or a click wrench, default values are written to the current group (parameter).

View Run

The VIEW RUN function is a graphing utility that is used with wireless pneumatic pressure transducers. This feature isn't compatible with click or digital wrenches.

Batch Reset

The BATCH RST button leads to a screen where the batch, the total, or both can be reset.

More

The MORE button allows access to the programming menu. All of the programmable features in this unit can be reached through these menus.

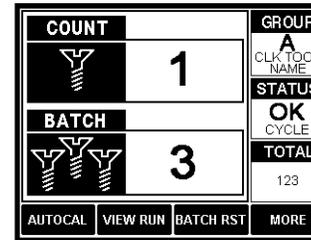
Lock Status



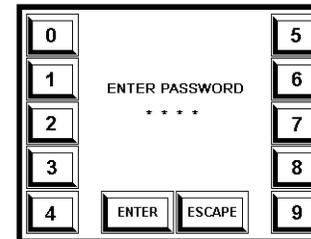
An icon that looks like a padlock appears at the top of the main screen. This icon shows the lock status.

If the unit is unlocked, the programming menu can be accessed without entering a password or using a key.

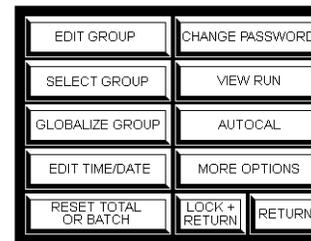
Programming Menu Options:



There are a number of programmable features associated with this unit and the tools associated with the unit. In order to access these programmable functions press the MORE button on the main screen.



If the unit is locked, the user will be prompted to enter the unit's password. At this point the user can either enter the password (0 1 0 4 is the default) or use the key-switch to bypass this screen.

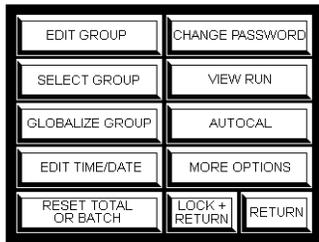


After the password is entered or the key-switch turned to the unlocked position, a screen full of menu options will appear. The user can select one of the options from the menu by pressing the soft-key adjacent to that option. Also, additional menu option screens can be reached by

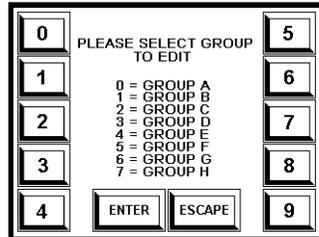
selecting the MORE OPTIONS button.

The unit can be sent back to the main screen by either pressing the RETURN soft-key or the LOCK+RETURN soft-key. If RETURN is selected, the unit will remain unlocked if a password was used to unlock the unit. Pressing LOCK+RETURN locks the unit and also sends the unit back to the main screen.

Edit Group:

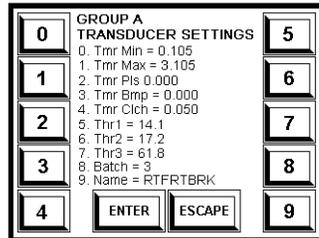


There are eight different groups or parameter sets available in the AQ Wireless. Each group can represent one tool and its associated settings.



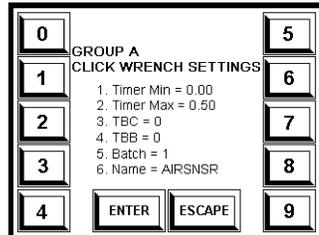
So, this unit can be used with multiple tools. Each new tool would have to be learned into a given group (parameter). The unit can also be used with a single tool but different setups.

In order to edit a group, press the EDIT GROUP soft-key on the menu screen.



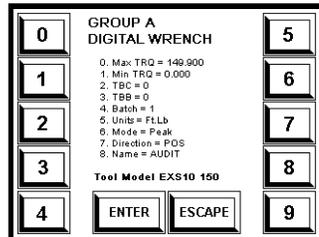
At this point, the user will be asked to select the group they wish to edit.

Groups A through H are represented by soft-keys 0 through 7. Pressing a number key will send the unit to an edit screen for that group.



Depending upon the type of tool associated with the group being edited, the edit screen will appear slightly different.

Wireless pressure transducers have multiple timers, multiple thresholds, a batch value and a tool name which can be edited.



Click wrenches have multiple timers, a batch value and a tool name which can be edited.

Digital wrenches have torque values, timers, units, operational mode, direction of operation and a tool name which can be edited.

Edit Group (continued):

In order to edit a value, press the number associated with that value. In most cases the unit will go to a screen that allows the user to type in a new value for the item being edited. In some cases where only a few options are available, pressing the number associated with the item to edit will toggle that item to a new value.

When the group is entirely edited, pressing the ENTER key will store that group to non-volatile memory so that the values can be remembered the next time the unit is powered down and then back up again. The ESCAPE key can also be pressed to leave the edit screen without saving any new values.

EDIT SCREEN DEFINITIONS (Pneumatic Transducer):

Tmr Min - Minimum run time for a pneumatic fastening.

Tmr Max - Maximum run time for a pneumatic fastening.

Tmr Pls - Minimum time a tool needs to pulse (if a pulse tool algorithm is being employed).

Tmr Bmp - Maximum time a tool can run without creating a status. Used so that trigger can be bumped without creating nuisance rejects.

Tmr Clch - Minimum amount of time that user has to hold tool trigger after tool clutches out.

Thr1 - Threshold 1 is a pressure setting. Above this pressure, the transducer assembly will start storing data.

Thr2 - Threshold 2 is a pressure setting. The transducer will consider the tool to be "in cycle" when the pressure goes above this threshold.

Thr3 - Threshold 3 is a pressure setting. When the pressure rises above this threshold, the transducer considers the tool to have "clutched out".

Batch - Number of fasteners to be tightened in this assembly.

Name - Name associated with this tool.

Edit Group (continued):

EDIT SCREEN DEFINITIONS (Click Wrench):

Timer Min - Minimum amount of time click wrenches head must remain clicked over during a torque event.

Timer Max - Maximum amount of time click wrenches head may remain clicked over during a torque event.

TBC - Time Between Cycles. After a good cycle, this timer will start. The unit will not allow another good fastening until after this timer expires.

TBB - Time Between Batches. After a batch is complete, this timer will start. The unit will not allow another good fastening until after this timer expires.

Batch - Number of fasteners to be tightened in this assembly.

Name - Name associated with this tool.

EDIT SCREEN DEFINITIONS (Digital Wrench):

Max TRQ - Maximum torque value that can be achieved during a fastening to be considered good.

Min TRQ - Minimum torque value that needs to be achieved during a fastening to be considered good.

TBC - Time Between Cycles. After a good cycle, this timer will start. The unit will not allow another good fastening until after this timer expires.

TBB - Time Between Batches. After a batch is complete, this timer will start. The unit will not allow another good fastening until after this timer expires.

Batch - Number of fasteners to be tightened in this assembly.

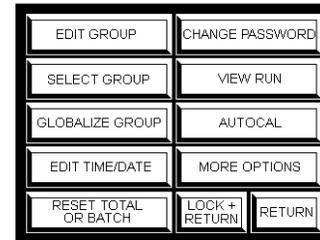
Units - This value controls the torque units that will be associated with the torque values.

Mode - This setting controls how the digital wrench captures its torque value.

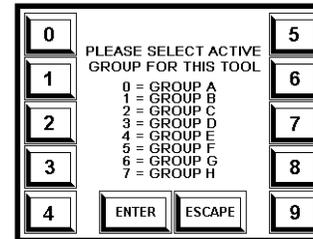
Direction - Most digital wrenches used with this box consider a clock-wise fastening to be positive and a counter clock-wise fastening to be negative. The setting determines if positive, negative, or both types of fastening will be acceptable.

Name - Name associated with this tool.

Select Group (through the user interface):



Only one group will ever be in operation at a time with this unit. There are two ways to select which group is being used. One way to select the active group is through the user interface (LCD and keypad). The second way to select the group is through the I/O.



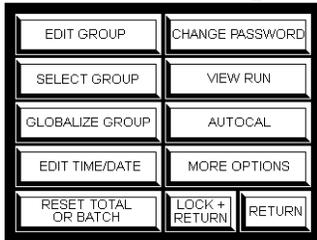
There is a setting under I/O options that chooses the mechanism for selecting the group (either through the user interface or through the I/O).

If the unit is set up to select groups through the user interface, the user can select a new group by pressing SELECT GROUP from the menu and then pressing the number on the keypad associated with the desired group.

If the unit is set up to select groups through the I/O and the user attempts to change the group through the user interface, the user will be warned that they are changing this setting. If they choose to proceed the new group will be selected and the I/O option for selecting the group through the I/O will also be written over so that groups are selected through the user interface.

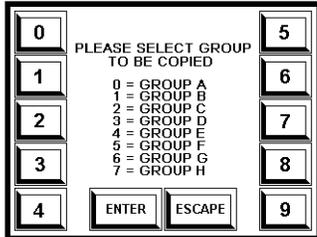
Pressing the ESCAPE key or the ENTER key will allow the user to leave the select group screen without changing the current group setting.

Globalize Group:



A copy and paste function exists for copying one group into all of the other groups. This feature is the globalize feature.

The globalize feature can be handy when setting up one tool to do multiple operations. A user can learn a tool into a group, modify that group, and then copy that information into all of the other groups.

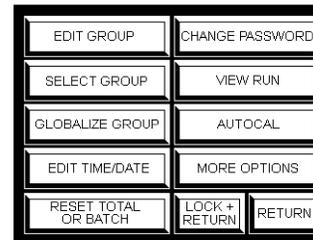


The globalize function might be used when setting up groups that all use the same tool and a similar set-up but perhaps the batch count varies to accommodate different models.

In order to use the globalize function, select globalize from the menu and then select the group that will be copied into all of the other groups by pressing the number on the keypad associated with the desired group.

Either ENTER or ESCAPE can be used to exit the globalize screen without performing the copy function.

Edit Time/Date:



A real time clock is included in the AQ Wireless unit. As events occur and are placed into memory for other functions, a time/date stamp is included with the event.

The real time clock can be viewed and edited through the program menu. In order to view/edit the time and date, select EDIT TIME/DATE from the menu.



A screen will appear that shows the current time and date. If these values need to be edited, the EDIT button can be pressed. The ESCAPE key can also be pressed to exit this routine.

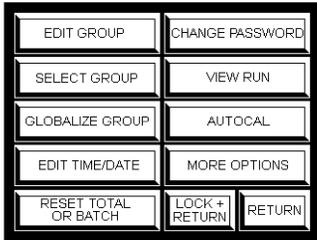


If the EDIT key was pressed, a screen will appear that shows the time and date but also has assigned several editing features to the soft keys to the left and right of the display. The soft keys on the left side of the display will all add one to the hour, minute, month, day or year depending on the key that is selected. On the right side of the display, the keys will all subtract one from those same values.

Once the time and date are set, the SAVE key can be pressed to set the time and date to the edited value.

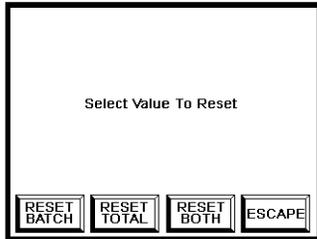
The ESCAPE key can be pressed to exit the routing without saving a new value.

Resetting the Batch/Total:



If a time ever arises that the batch and or total need to be reset, this can be accomplished through the user's interface. (The batch can also be reset through the I/O).

In order to reset one of these values, select RESET TOTAL OR BATCH from the menu.



A screen will appear with four buttons along the bottom of the screen and the user is prompted to "Select Value To Reset".

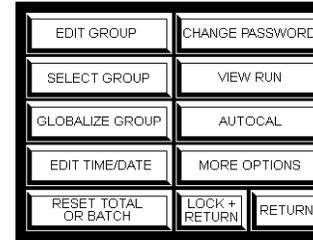
If RESET BATCH is pressed, the batch count is returned to zero and the cycle, batch and/or reject outputs are returned to their default state.

If RESET TOTAL is selected, the total value associated with this group is reset to zero.

If RESET BOTH is pressed, both the batch and total values are set to zero and the cycle, batch and reject outputs are returned to their default state.

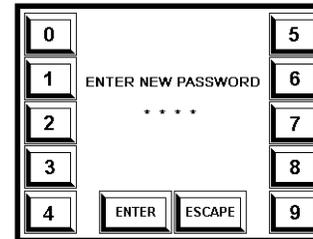
The ESCAPE key allows the user to return to the menu without resetting either the batch or total values.

Creating a New Password:



The AQ Wireless has a default password of 0 1 0 4. This password can be altered to any four digit number.

To alter the password, select CHANGE PASSWORD from the menu.

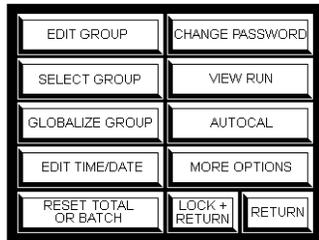


The keypad screen will appear and in the center of the screen, the prompt will read "ENTER NEW PASSWORD". At this point the user can use the keypad to enter a four digit number that will be stored and used as the new password.

Once the new password is entered, the ENTER key may be pressed in order to save this value to non-volatile memory.

The ESCAPE key may be pressed at any time to exit this routine without saving any changes to the password.

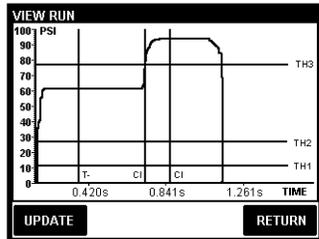
View Run:



Pneumatic Transducers capture analog information during a fastening process. This analog data can be viewed in graphical form by choosing View Run from the programming menu.

The View Run feature is only compatible with pneumatic transducers. It will not work with click or digital wrenches.

To view a graphical representation of the pressure signature created during a fastening process using a pneumatic transducer, press the View Run soft-key on the programming menu.

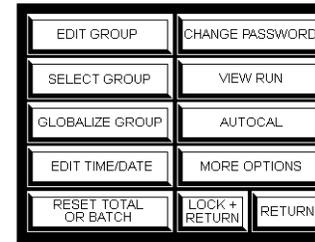


The AQ Wireless unit will contact the transducer associated with the current group (parameter) and retrieve the analog information from the last fastening process. While this is occurring, a percent complete message will appear on the graphing screen. Once the transfer is completed, the analog information will be displayed on the graphing screen. Thresholds and timers will also be overlaid on top of the pressure curve.

If the Update soft-key at the bottom of the screen is pressed, the AQ Wireless will be prompted to repeat the retrieval process.

The Return button can be pressed to escape from the graphing function and return to the menu.

AutoCal:

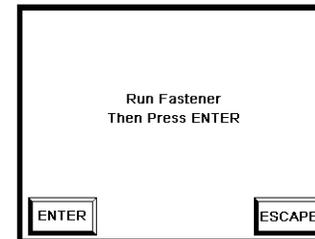


Pneumatic Transducers need to be calibrated in order to properly monitor a given pneumatic tool and fastening process. The AutoCal feature on the programming menu provides an automatic means for accomplishing this task.

The AutoCal mechanism will look at the pressure information from a fastening and automatically calculate a set of timers and thresholds that will work for the current tool and fastening process.



The AutoCal function is meant to be used with pneumatic transducers. However, this function can be used on click wrenches and digital torque tools to write a default group (parameter) for the associated tool.

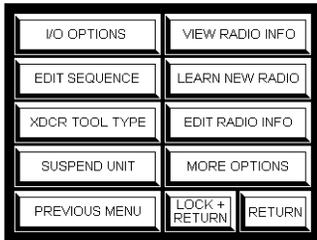


To access the AutoCal process, press the AutoCal soft-key on the program menu. A screen will appear asking the user to leave the tool off and press Enter. If Enter is pressed, the AQ Wireless will send a command to the transducer telling it to set its background noise threshold (i.e. threshold 1).

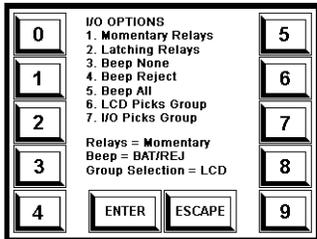
A second screen will appear telling the user to run a fastener and then press Enter. At this point, a typical fastener should be run so that the transducer can collect pressure data. Once the fastening is complete, pressing Enter will prompt the AQ Wireless to send a command requesting the actual calibration. If successful, new timers and thresholds will be created based on the pressure data from the last fastening.

Pressing the Escape key will allow the user to exit this function without performing an AutoCal.

I/O Options:



Several options exist in order to govern the behavior of the input and output devices. In order to access these options, select I/O Options from the second menu screen.



A screen will appear showing different I/O options and also the current settings. From this screen the user can select how the relays and beeper will function. Also, the user can select which mechanism will control group (parameter) selection.

Relays The relays inside this unit can be set to be either momentary or latching. If set to momentary by pressing the 1 key, the relays will be on for 200ms every time an event occurs (i.e. cycle, batch or reject). If set to latching by pressing the 2 key, the relays will remain on until the next event or until a batch reset is issued.

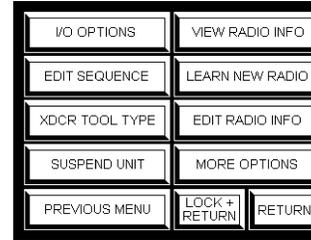
Beeper The beeper can be turned off, beep on rejects only, or beep on all events by pressing the 3, 4 and 5 key respectively.

Group Selection Groups (parameters) can be selected through the LCD interface by pressing 6 or through the I/O by pressing the 7 key.

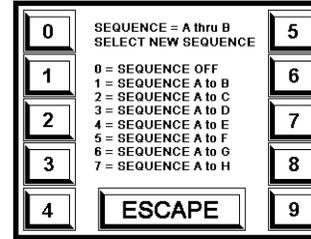
The current settings for the relays, beeper and group selections are displayed at the bottom of the screen. Pressing the ENTER key will save these settings to non-volatile memory.

The ESCAPE key can be pressed to exit this routine without saving new settings.

Sequencing:



The AQ Wireless can be set up so that it automatically changes from group to group as batches are completed. This function is called sequencing.



In order to edit the sequencing function, press the Edit Sequence soft-key on the second menu screen. The keypad screen will appear showing the user the current sequence setting and allow them to alter that setting.

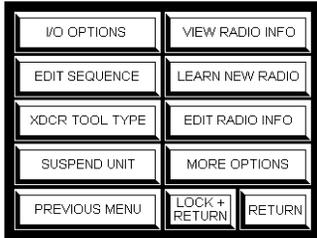
If sequencing is off, the AQ wireless will operate from one group (parameter) until the user changes the group either from the user interface or through the I/O.

If sequencing is on, the unit will start in group A until a batch is completed. Once the batch completes, the unit will automatically change to the next parameter until the end parameter is reached. Once the end parameter is reached and the batch is completed, the unit will automatically return to group A.

The sequence setting can be altered by pressing the number that represents the sequence that the user desires. Pressing a number key will automatically select and save the new sequence setting to non-volatile memory.

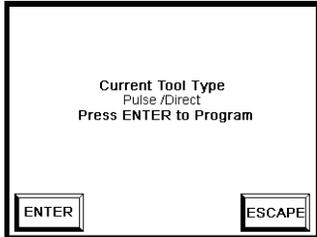
The Escape key can be pressed at any point to exit this routine without selecting or saving a new sequence setting.

Transducer Modes:

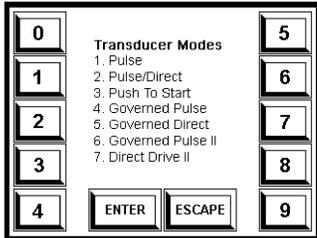


The wireless pneumatic transducer has several different modes for monitoring pneumatic tools. These modes look for different hallmarks in the pneumatic signature.

To select the mode of operation for the pressure transducer associated with the current parameter, press the XDCR Tool Type soft key on the second menu.



The AQ Wireless will query the wireless transducer and ask for its mode of operation. That mode will be displayed on a second screen. If the user needs to change the mode of operation, the Enter key can be pressed to access an edit screen.

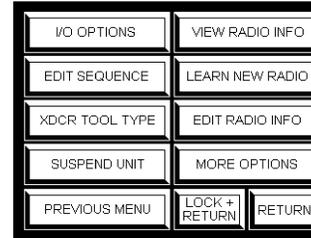


A key pad will appear with all of the transducer mode options. Pressing the numbered key associated with the desired mode of operation will prompt the AQ Wireless to program a new mode of operation into the transducer.

A vast majority of tools should be monitored with the Pulse/Direct option #2.

The Enter or the Escape key can be pressed to exit this function without writing a new mode of operation to the transducer.

Suspend:

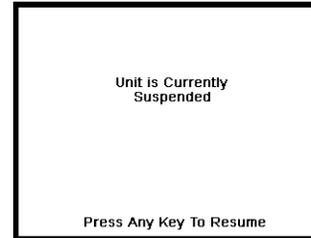


A time may arise when the tool needs to be operated in a repair, rework, or maintenance situation and it would best if the unit was not reporting rejects, cycles and batches. If this situation arises, the suspend feature may be used.



While the unit is suspended, it will ignore cycles, batches and rejects.

To enter into the suspend mode, select Suspend Unit from the second program menu.

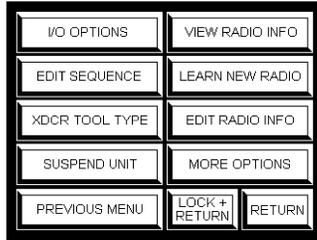


A screen appears at this point prompting the user to press the Enter button to suspend the unit and to press the Escape button to exit.

If the Enter key is pressed, another screen will appear letting the user know that the unit is suspended. In the case of a wireless transducer, the AQ Wireless actually has to transmit a command to the transducer for it to suspend.

While the unit is suspended, it will wait for an additional key press. Once this key press occurs, the unit will exit suspend mode.

View Radio Information:



The View Radio Information screen lists the groups (parameters), the Radio ID learned into that group, what channels the radios will operate on when that group is active, the tool type being used, and the name that was given to the tool.

GROUP	RFID	CHNL	TYPE	NAME
A	07CB	1	AIR	PULSE1
B	CA3A	2	CLK	CLICK1
C	7EF9	1	DIG	EXACTA1
D	8675	1	AIR	PULSE2
E	0309	5	CLK	CLICK2
F	ABCD	8	DIG	EXACTA2
G	1245	3	AIR	PULSE3
H	9F1C	1	CLK	CLICK3

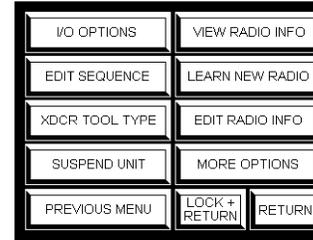
Press Any Key To Return

This screen can be a handy trouble shooting tool.

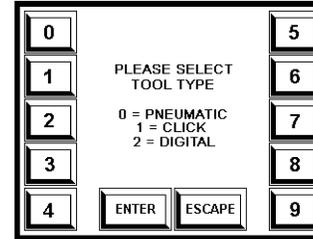
To access the View Radio Information screen, go to the second menu screen and press the View Radio Info button.

Radio and tool information will appear on the following key. Any key can be pressed to exit this function.

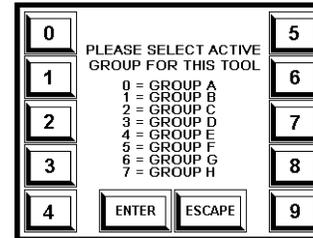
Learning New Radios:



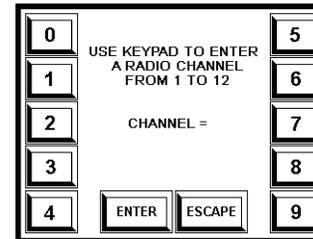
Before a wireless transducer, click wrench or digital radio wrench can be used with an AQ wireless, the device's radio information has to be learned by this unit. To start the learning process, select Learn New Radio from the second menu.



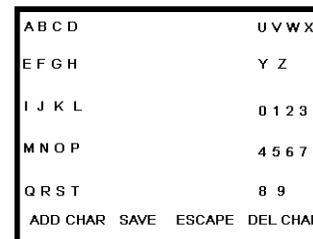
A key pad will appear and a prompt will ask the user to select their tool type. Select the number that is associated with the tool type you are trying to teach to the box.



The user will then be asked which group (parameter) this information should be stored in. This group will have to be the active group when this new tool is used with the unit.



A channel must be selected for the tool and box to communicate on. The learning process will take place on channel one but after the radios have synchronized they will both hop to the new channel.



A name can be give to the tool that is being learned. The name can be up to eight characters long. Pressing the button next to the desired character set will toggle the characters. Continue to press the button until the desire character is displayed. The Add Char button can be used to add the new character to the name. The Del Char button will remove the last character from the name.

The Add Char button can be used to add the new character to the name. The Del Char button will remove the last character from the name.

Learning New Radios (continued):



Depending on the type of tool being learned, the process will vary slightly.



For wireless transducers (air tools), the user will be prompted to hold the learn button on the transducer until it enters the learn mode. The Rx/Tx LED on the transducer will toggle to signify that it has entered into the learn mode. When the button is released, the display on the AQ wireless will give the user feedback on the progress of the learn process.



Click wrenches need to be disassociated with any previous applications before they will learn a new unit. To perform this disassociation, click the head of the click wrench over until the LED turns solid red. After the LED turns solid red release the wrench and then click it

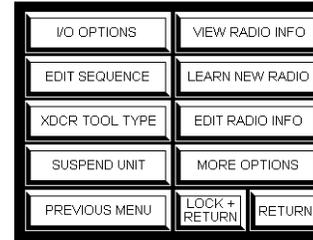
again. The learn process should take place at this point. The display on the AQ wireless will provide feedback on the progress of the learn function.

Digital wrenches need only be cycled off and then back on again to be learned to a new unit. The display on the AQ wireless will provide feedback on the progress of the learn function.

If a digital wrench or click wrench has been learned to another unit and that unit is within radio range, the other unit should be turned off while the new learn is taking place.

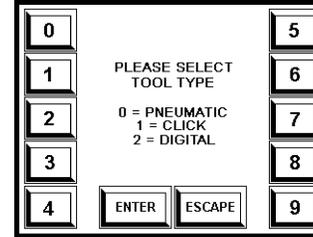
Once the learning process is complete, pressing any key will return the unit to the programming menu.

Edit Radio Information:

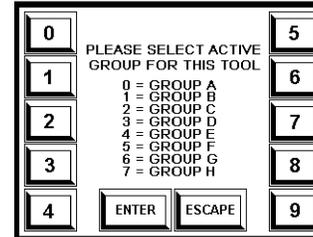


This edit radio function is included in the unit for trouble shooting purposes.

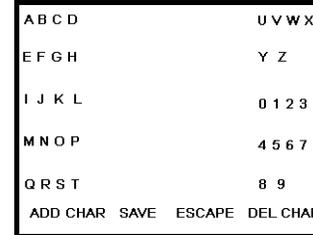
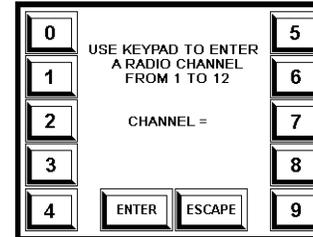
If the radio ID is known for a given tool, that tool can be added to a group (parameter) in the AQ wireless. This function can be handy, especially with click wrenches and digital tools that have already been associated with the unit.



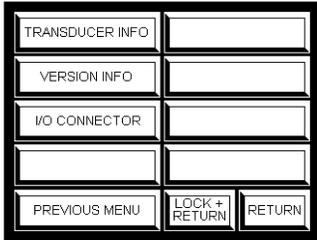
If a tool has never been learned to the AQ wireless in question, the Edit Radio Information function will not completely learn the tool to the box since all tools hold information about the unit with which they are supposed to associate.



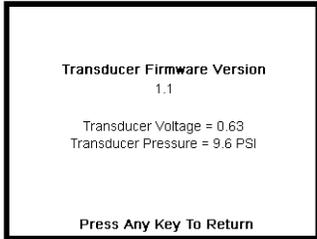
During the edit radio process, the user will be prompted to provide the tool type, the group the tool should be associated with, a channel number, a tool name, and a radio ID.



Transducer Information:



The Transducer Info button on the third programming menu leads to a screen that displays information about the wireless pneumatic transducer that is associated with the current group (parameter).



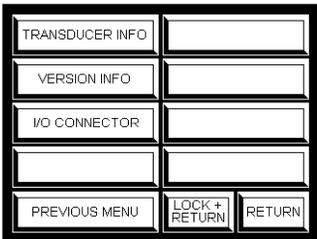
This function is not compatible with click wrenches or digital torque wrenches.

If the Transducer Info button is pressed, the AQ Wireless will poll that transducer retrieving its firmware version and information pertaining to the pressure sensor.

The voltage and pressure information will be updated frequently while this screen is displayed. This screen can be utilized to tell if the tool and pressure transducer are functioning properly.

Pressing any key while this screen is displayed will return the user to the menu.

Version Information:

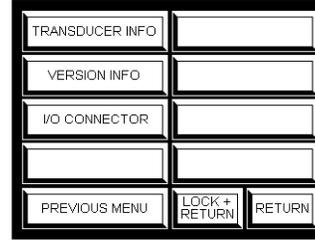


If the Version Info button is pressed, the firmware version for the AQ wireless will be displayed.

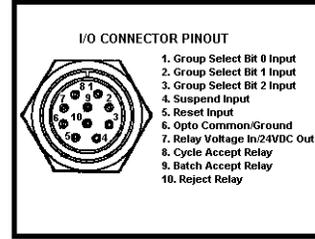
Pressing any key returns the unit to the program menu.



I/O Connector:

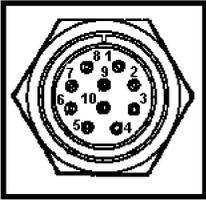


A screen that shows the I/O connector and its pinout can be viewed by pressing the I/O connector button on the third menu screen.

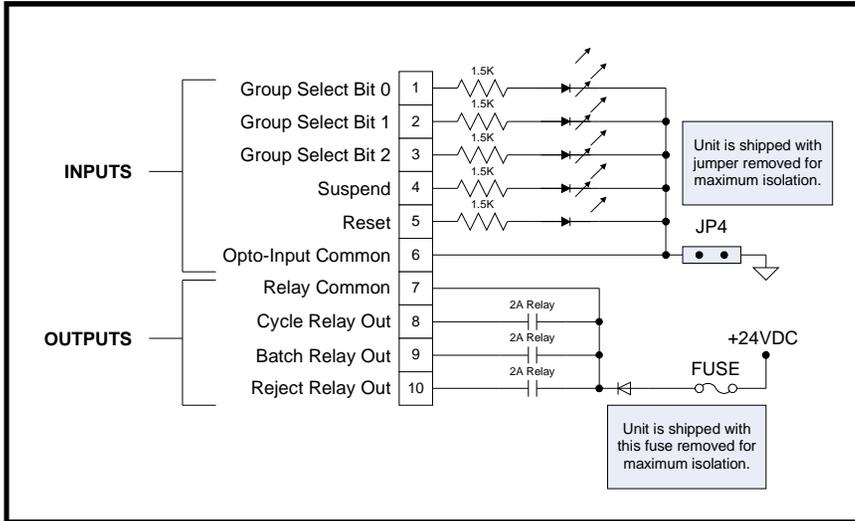


While the connector is on the LCD, pressing any key will return the unit to the programming menu.

I/O Schematic and Pinout:



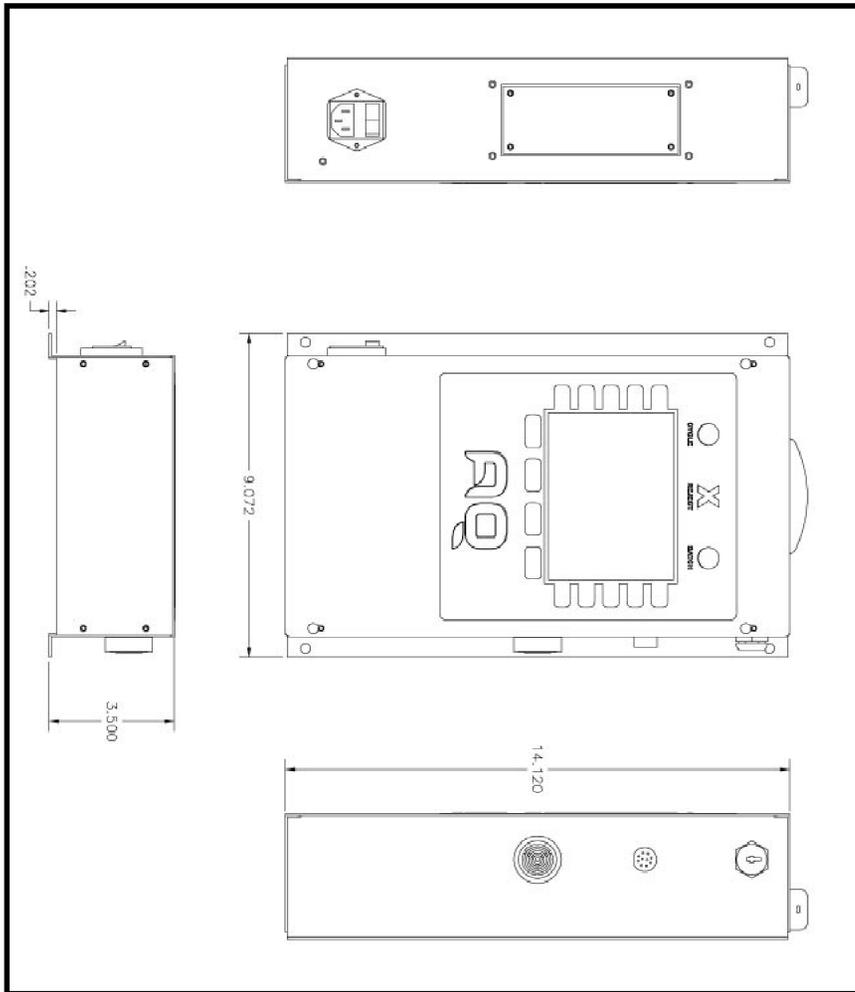
The connector on the side of the AQ Wireless is a Hirose RM15TRD-10S(71) or equivalent. The mating connector for this item is a Hirose RM15TPD-10P(71).



Group Selection:

Group	Group 0 Input	Group 1 Input	Group 2 Input
A	0VDC	0VDC	0VDC
B	0VDC	0VDC	24VDC
C	0VDC	24VDC	0VDC
D	0VDC	24VDC	24VDC
E	24VDC	0VDC	0VDC
F	24VDC	0VDC	24VDC
G	24VDC	24VDC	0VDC
H	24VDC	24VDC	24VDC

Unit Outline and Dimensions:



Radio Information:

Indoor/Urban Range	300ft./100m
Outdoor RF line-of-sight range	1 mile/1500m
Transmit Power	60mW(18dBm) conducted 100mW(20dBm) EIRP
Receiver Sensitivity	-100dBm(1% packet error)
FCC Part 15.247	OUR-XBEEPRO
Industry Canada	4214A XBEEPRO
Europe(CE)	ETSI

FCC Statement:

Contains FCC ID: OUR-XBEE/OUR-XBEEPRO
 The enclosed device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (i.) this device may not cause harmful interference and (ii.) this device must accept any interference received, including interference that may cause undesired operation.

Channel Frequencies:

Channel 1	2.410GHz
Channel 2	2.415GHz
Channel 3	2.420GHz
Channel 4	2.425GHz
Channel 5	2.430GHz
Channel 6	2.435GHz
Channel 7	2.440GHz
Channel 8	2.445GHz
Channel 9	2.450GHz
Channel 10	2.455GHz
Channel 11	2.460GHz
Channel 12	2.465GHz